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AMENDMENTS TO THE CLAIMS

Claim 1-21 (canceled):

Claim 22 (currently amended): A method of enhancing detection for a specific object or distribution thereof in a body, comprising the steps of:

(a) administering to said body for detection of the object, if present, a nanoparticulate, the nanoparticulate having the following properties:

i. it is a collection of at least partially metallic nanoparticles, having a most probable size and a most probable absorption maximum at a selected wavelength or range of wavelengths, comprising shells with a negative value of the real part of the complex dielectric permeability wherein said shells are filled with a substance having a coefficient of thermal expansion in the range of 9.times.10.sup.-2 mm.sup.3/joule to 2.times.10.sup.3 nm .sup.3/joule.

ii. it has a minimal characteristic dimension in the range from about 1 to about 3000 nanometers, and

iii. it has a formed composition capable of producing thermal pressure either in said nanoparticulate or in said object greater than said object could produce as a result of step (b) in the absence of said nanoparticulate;

(b) directing onto said body specific electromagnetic radiation having a wavelength or spectrum of wavelengths in the range from 3 nm to 300 mm selected so that the wavelength or wavelength spectrum is longer by a factor of at least 3 than the minimum characteristic dimension of said nanoparticulate, said

nanoparticulate absorbing said electromagnetic radiation more than would one or more non-aggregated spherically shaped particles of the same total volume with a composition identical to said nanoparticulate, said nanoparticulate by such absorption producing an enhanced optoacoustic signal resulting from said absorption;

(c) receiving said optoacoustic signal;

(d) converting said received optoacoustic signal into an electronic signal characterized by at least one parameter selected from amplitude, frequency, phase, temporal profile, time of arrival, frequency spectrum, or a combination of any one or more of such parameters; and

(e) presenting said signal for assessment of said at least one parameter by a human or a machine.

Claim 23 (currently amended): The method of claim 22 in which said substance is selected from the group comprising water, aqueous gels, hydrogels, gases, lipids and other organic substances.

Claim 24-57 (canceled):

Claim 58 (currently amended): A method of enhancing detection for a specific object or distribution thereof in a body, comprising the steps of:

(a) administering to said body for detection of the object, if present, a nanoparticulate, the nanoparticulate having the following properties:

i. it is a collection of at least partially metallic nanoparticles, having a most probable size and a most probable absorption maximum at a selected wavelength or range of wavelengths, wherein said collection is selected from gold, silver, platinum, a mixture of at least two of said metals, or an alloy of at least two of said metals, or a carbon nanotube with metallic properties

ii. it has a minimal characteristic dimension in the range from about 1 to about 3000 nanometers, and

iii. it has a formed composition capable of producing thermal pressure either in said nanoparticulate or in said object greater than said object could produce as a result of step (b) in the absence of said nanoparticulate;

(b) directing onto said body specific electromagnetic radiation having a wavelength or spectrum of wavelengths in the range from 3 nm to 300 mm selected so that the wavelength or wavelength spectrum is longer by a factor of at least 3 than the minimum characteristic dimension of said nanoparticulate, said nanoparticulate absorbing said electromagnetic radiation more than would one or more non-aggregated spherically shaped particles of the same total volume with a composition identical to said nanoparticulate, said nanoparticulate by such absorption producing an enhanced optoacoustic signal resulting from said absorption;

(c) receiving said optoacoustic signal;

(d) converting said received optoacoustic signal into an electronic signal characterized by at least one parameter selected from amplitude, frequency, phase, temporal profile, time of arrival, frequency spectrum, or a combination of any

one or more of such parameters; and

(e) presenting said signal for assessment of said at least one parameter by a human or a machine.

Claim 59 (currently amended): A method of enhancing detection for a specific object which may be a tissue, cell, microorganism, or molecule, or bio-warfare agent or distribution thereof in a body, comprising the steps of:

(a) administering to said body for detection of the object, if present, a nanoparticulate, the nanoparticulate having the following properties:

i. it is at least partially metallic.

ii. it has a minimal characteristic dimension in the range from about 1 to about 3000 nanometers, and

iii. it has a formed composition capable of producing thermal pressure either in said nanoparticulate or in said object greater than said object could produce as a result of step (b) in the absence of said nanoparticulate:

(b) directing onto said body specific electromagnetic radiation having a wavelength or spectrum of wavelengths in the range from 3 nm to 300 mm selected so that the wavelength or wavelength spectrum is longer by a factor of at least 3 than the minimum characteristic dimension of said nanoparticulate, said nanoparticulate absorbing said electromagnetic radiation more than would one or more non-aggregated spherically shaped particles of the same total volume with a composition identical to said nanoparticulate, said nanoparticulate by such

absorption producing an enhanced optoacoustic signal resulting from said absorption;

(c) receiving said optoacoustic signal;

(d) converting said received optoacoustic signal into an electronic signal characterized by at least one parameter selected from amplitude, frequency, phase, temporal profile, time of arrival, frequency spectrum, or a combination of any one or more of such parameters; and

(e) presenting said signal for assessment of said at least one parameter by a human or a machine.

Claim 60 (canceled):